



impala moved from the north-western side of a drainage line, which they favoured during the wet season, to a dense thicket on the south-eastern side of the drainage line.

Competition for suitable habitat in terms of space due to the small size of the reserve, density of woody plants and available food during winter proved to be high, especially in the dense thicket and drainage lines where most of the woody plants occur. Some grazers are also known to include browse during the dry season when the quality of grass declines, thereby increasing pressure on this limited resource. As a result of the deciduous nature of the woody species in the reserve the browse resource becomes critically limited during the late dry season. Since migration to alternative food resources is prevented by the fences, condition loss or even mortalities of these game species are anticipated in this small fenced area if supplementary feeding is not provided during the critical period. This conclusion is supported by the popularity of the feeding area and the apparent dependence of the browser and mixed feeder game species on the supplementary feeding. Faecal nitrogen levels of animals receiving supplementary feeding were above known critical levels, except for kudu. It is important to determine from the presence of leaves on trees, when to supply feed in order to prevent financial losses for such a small game ranch.

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**POSTER PRESENTATION: HABITAT UTILIZATION OF WHITE RHINOCEROS  
(*CERATOTHERIUM SIMUM*) IN THE WILLEM PRETORIUS GAME RESERVE**

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The Willem Pretorius Game Reserve is located in the Free State Province and is approximately 12 091 ha in size. Although a management plan for the white rhino population exists no research has been done to date on their ecology and habitat utilisation in the reserve. Game species occupy and utilize diverse plant communities for different activities such as sleeping, feeding and reproduction. It is therefore important that the plant communities of the home range of an animal be studied as the basis of the animal's requirements. This study is part of a larger project on the ecology and behaviour of white rhinos in the reserve and as a first step in developing guidelines to manage these animals in smaller reserves and game farms in the Free State Province.

The aim of this study was to determine the habitat utilisation of white rhinoceros in the Willem Pretorius Game Reserve in the Free State Province. The study was conducted over a two year period and included Braun-Blanquet vegetation surveys within the home range of the white rhinoceros, while daily observations regarding the location and activities of the rhinos were recorded. A total number of 40 sample plots (400 m<sup>2</sup>) were placed in the home range of the rhinos in a stratified random basis using 1:10 000 ortho photos. The vegetation data was analysed using the TWINSPAN multivariate classification technique. Rhinos were followed on a monthly basis for 96 hours at a time over a period of four years (2007-2008). The GPS coordinates (n=249) were mapped on the ortho photos with the use of ArcView to determine the habitat preferences and utilisation of the rhinos.

The results indicate that during the dry season white rhinos had a preference for trees and shrubs of the *Acacia karroo-Grewia occidentalis* midslope Woodland on the higher-lying areas while they preferred the *Cynodon hirsutus* dam edge Grassland and *Acacia karroo-Setaria verticillata* dense Woodland on the lower-lying areas next to the dam during the wet season. During the dry season the lactating cows moved deep into the thickets located between steep cliffs and in gullies in order to feed on green grasses such as *Panicum maximum* and *Enneapogon scoparius* that survived the frost by being protected under trees and shrubs. The rhinos did not utilize all plant communities within their home range equally. Wetlands provided a few green grasses throughout the year due to the seepage effect and simultaneously provided warm protected areas during the winter months, but were generally the least utilised areas due to the



dominance of tall unpalatable grasses such as *Eragrostis rotifer*, *Eragrostis plana* and *Sporobolus africana*. The results of this study indicate that the white rhinos mostly preferred the short grass communities with the grasses *Cynodon hirtus*, *C. dactylon*, *Enneapogon scoparius* and *Aristida spp.* being the most preferred species.

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**PLATFORM PRESENTATION: SEASONAL FLORISTIC CHARACTERISTICS OF FORAGING PATCHES OF WHITE RHINOCEROS (*CERATOTHERIUM SIMUM SIMUM*) IN THE SONGIMVELO NATURE RESERVE, MPUMALANGA PROVINCE**

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Forage patch selection by White Rhinoceros in the Songimvelo Nature Reserve was investigated during the late wet (January to March) and late dry seasons (June to August) of 2008. The aim of the study was to describe the floristic attributes of the selected patches in both seasons relative to neighbouring control patches.

Forage patches were identified by locating Rhinos and observing their feeding behaviour (n = 21 for wet season, n = 19 for dry season). Floristic information was recorded in both the experimental plots (feeding patch) and control plots (located 50 m from the experimental plots, situated within the same plant community). A two-way ANOVA, using three replicates, indicated that grass species density between experimental (Exp.) and control (Ctrl) plots were significantly different in the late wet season (Exp = 19 ± 25; Ctrl = 14 ± 12 ) and the late dry season (Exp = 15 ± 16; Ctrl = 12 ± 15).

The grasses with the highest densities in the late wet season and also selected by the White rhinoceros included *Heteropogon contortus*, *Cynodon dactylon*, *Eragrostis spp.* and *Bothriochloa insculpta* compared to *Heteropogon contortus*, *Setaria sphacelata* and *Hyparrhenia hirta* in the late dry season. The density (number m<sup>-2</sup>) of grass species in the height class 0 - 10 cm in the experimental (18.60 ± 2.97) plots were higher compared to the control (13.81 ± 1.45). Grass phytomass showed a significant difference between the late wet (1313.71 ± 60.85) and late dry seasons (1060.92 ± 55.26) and a significant difference between experimental (1051.57 ± 58.38) and control (1332.42 ± 57.88) plots. The woody component showed a high proportion of dwarf shrubs (≤ 1 m in height) in both experimental (Late wet = 0.75; Late dry = 0.83) and control (Late wet = 0.70; Late dry = 0.71) plots across both seasons but showed a lower proportion of trees (> 2 m in height) in experimental plots (Late wet = 0.10; Late dry = 0.03) than in control plots (Late wet = 0.14; Late dry = 0.14).

This study shows that White Rhinoceros prefer foraging in open areas and select patches with an abundance of preferred short grass species. This requires a careful consideration of the carrying capacity of the area because that can have a significant effect on the vegetation composition and species diversity of the selected areas.

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